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AUTHOR Drea, John T.; Armistead, L. Pendleton
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ABSTRACT

John Wood Community College (JWCC) serves a district population of approximately 90,000 in a predominantly rural section of west-central Illinois. In an effort to address the needs of the rural long-distance learner, JWCC has implemented a variety of instructional delivery techniques. Since its inception, JWCC has contracted with other area colleges and proprietary schools to provide education to JWCC students. JWCC students attend class with "native" students of contracting institutions, yet pay the low tuition and fees of JWCC. This allows JWCC to access quality instruction without duplication of facilities and manpower. A second innovative delivery method is represented by JWCC's developed Open Learning Centers, which feature open-entry/open-exit courses taught with a mastery learning design. The centers utilize media-based materials (audio and video taped materials and computer-assisted instruction) to individualize instruction in a wide range of courses for over 1,400 students each year. In addition to existing programs, JWCC is making plans to: (1) deliver college courses to rural communities via the computer, modems, and telephone lines; (2) promote the use of new computer-aided design/computer-aided manufacturing (CAD/CAM) technology by local industries by introducing a CAD/CAM lab at a local business incubator; and (3) expand its use of a regional educational television network, which offers recorded telecourses that can be received in the home via cable television and an interactive televised microwave network which allows two-way communication between network sites. (UCM)

Serving Distant Learners Through Instructional Technologies

John T. Drea
Assistant Dean of Instructional Services
John Wood Community College

L. Pendleton Armistead
Assistant Dean of Instructional Services
John Wood Community College

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Abstract

John Wood community serves a district wide population of approximately 90,000 in predominantly rural sections of west-central Illinois. In order to provide the region with access to a comprehensive higher education, the college has implemented a variety of instructional delivery techniques. Through the use of computer based systems, interacitve television, individualized instructional techniques, and technology-based instructional programs, John Wood Community College has succeeded in providing quality education to distant learners. This manuscript is an outgrowth of a presentation given by John Drea and Paul Heath at the 1987 COMBASE conference on "Cutting-Edge Technologies" in Colorado Springs, Colorado.

Introduction

Founded in 1974, John Wood Community College (JWCC) is the newest member of the Illinois Community College System. JWCC serves a district population of approximately 90,000 in a predominantly rural section of west-central Illinois. The college has its headquarters in Quincy, Illinois, a small city of 42,000 located on the western edge of the district. Quincy is the commercial center of the region and it is the largest community in any direction for nearly 100 miles. The remainder of the district is characterized by small towns (most under 1,500 population) scattered across the region and an agriculture-based economy.

The geographical characteristics, although not unique to many community college settings, have presented problems to the college and the long distance learner. Despite concerted efforts to address the needs of rural long distance learner, implementations of traditional delivery systems have not been totally successful. Thus, John Wood Community College has embarked on an innovative three year program to expand and strengthen the use of nontraditional instructional delivery methods. Through the use of selected technologies, JWCC will offer complete college level courses for credit as well as other educational services to underserved rural communities. For example, the college is in the process of developing a computer-based instruction network for the region by placing computer

terminals in selected rural sites and connecting the terminals to a central computer located on the JWCC main campus. An instructor will monitor the student's progress, grade assignments, and prescribe assignments and course modules that will enable the student to achieve the course objectives. Other techniques that provide students with access to education are through contractual arrangements, open learning programs, interactive television programs and computer managed educational networks.

Contracting for Educational Services

From its inception, John Wood Community College has been a unique educational institution because of its variety of delivery systems. Rather than duplicate the offerings of existing area educational institutions, JWCC chose to develop a contractual relationship with these institutions and have them provide education to JWCC students. JWCC students sit side by side with "native" students in classes on the campuses of these contracting institutions and pay the low tuition and fees of JWCC. All grades, transcripts, diplomas, and student services are provided to the student by JWCC. In return for providing education to JWCC students, the college pays each contracting institution on a per credit hour basis. This unusual delivery method allows JWCC to access quality instruction without duplicating the facilities and manpower of the area colleges and proprietary schools.

The legal basis of the common market system is the educational services contract. The contract enables JWCC to purchase comprehensive educational services and student activity

privileges from the contracting institutions at a set per credit hour rate. Educational services are defined as "formal classroom instruction, counseling/advising, administrative support services, placement assistance, and total use of physical facilities, including libraries." Student activity privileges include all student activities available to the contracting institution's own students.

Students are admitted, counseled, registered, and given financial aid through John Wood Community College, paying the lower JWCC tuition rate of $25 per credit hour. At the conclusion of each academic term, JWCC reimburses the contracting institution for the total credit hours generated by JWCC students at the contracting institution.

The rate of payment to the contracting institution for educational services is established through negotiations on an institution by institution basis, and in general has been based upon instructional cost factors. Under the current system, a variable rate structure reflecting an economy of scale gives JWCC a cost break when credit hours generated at the contracting institution reach a predetermined level. This "bulk rate" approach benefits both parties: JWCC can increase the number of students served with the built-in incentive of a reduced per student cost factor (an economy of scale), while the contracting institution is guaranteed a higher base rate for minimal enrollments, which permits more accurate budget projections.

From a student perspective, the educational common market provides great flexibility. Students can choose to take all

classes at a single location or enroll at multiple locations in the same semester. JWCC students may participate in the extracurricular activities of the campus they are attending, and they may participate in the extracurricular activities sponsored directly by JWCC. Furthermore, JWCC students are eligible to live in residential housing, may use the library resources of any contracting institution, and may participate in student governing and student trustee associations, (Heath, Drea, & Armistead, 1987).

After a decade of operations, it is clear that the common market approach to education can and does work. Over 30,000 area residents have taken credit classes through the educational common market. All of the original contracting institutions are still active in the common market. In fact, the common market has expanded to include new contracting institutions, including private industry. From an accessibility point of view, the approach has been a huge success.

Open Learning Programs

A second innovative delivery method used by JWCC is the college's heavy involvement of individualized instruction. In every John Wood Community College mission statement, the Board of Trustees has continually reaffirmed the fundamental belief that students differ in their rates of learning and not in their ability to learn. In response to this belief, the college has developed one of its most important additions, Open Learning Centers. These centers feature open entry, open exit courses taught with a mastery learning design. JWCC combines media-based

materials (audio and video taped materials and computer-assisted instruction) and instructors to individualize instruction for over 1,400 students each year in scores of credit bearing courses.

Typically, Open Learning Center students schedule convenient times when they can meet with each instructor for one to three hours. The instructors review student progress in the course, answer questions, and discuss assignments. The students may then review the next segment of course materials. When the student and instructor believe the student is sufficiently prepared, the student may complete a unit examination based upon previously defined learning objectives. Students who are successful move on to the next section of the course. Those who are not successful meet with the instructor to review weaknesses and complete prescriptive assignments. Once students are prepared, they may take a second form of the examination. In this fashion, students proceed at their own pace through the course objectives.

Open Learning Centers hold many special advantages for JWCC students. Working students can arrange class schedules to suit their own needs. Students who learn either quickly or slowly can work at their own pace and not be constrained by the typical 16-week college semester. Older students can return to college without spending time in a classroom surrounded by 18 to 21-year-old students, (Heath, Drea, & Armistead, 1987).

Perhaps the greatest distinction to these centers are the depth and breadth of coursework available. Current offerings include ABE/GED classes plus college credit courses in

mathematics, accounting, English, business, computer science, secretarial science, reading, psychology, economics, sociology, and history. The Open Learning Centers have become an attractive alternative for students who prefer to work at their own pace, students with busy schedules who cannot attend classes at regularly scheduled times, and students who need more personalized contact.

Computer-Based Education

Computers have been used for many years in education to deliver supplemental instruction. Colleges and universities have constructed computer labs where students work on microcomputers and computer terminals connected to a mainframe to reinforce concepts learned in the classroom.

At JWCC, the question was raised "What if we use the computer as a primary instructional delivery system?" The idea at JWCC is to deliver college courses to rural communities via the computer, modems, and telephone lines. A student will sign-on at a computer terminal in his/her community connected to a local fileserver or "host" and begin working on an interactive college course. Upon completing the lesson, the student will "save" his/her data on the system. At night an auto dialer on the fileserver at the remote location will call the central computer, make a connection, and transmit the results of the student's progress (as well as all other students who used the system in that location that day). The next day, an instructor will sign-on to the system and review the progress made by the student. The instructor will then make prescriptive comments to

the student using electronic mail, suggesting areas the student may wish to review or assignments the student should complete before proceeding to the next lesson. When the student signs-on to the system the next time, the instructor's comments would be waiting.

It is important to realize that JWCC is not replacing instructors with computers. In fact, JWCC foresees potentially hiring additional instructors as a result of this approach due to the increased number of rural students enrolling in the institution. Typically, a student will meet with an instructor before beginning a course to learn the expectations of the instructor and the course and to learn how to use the computer-based system. Of course a student having difficulty with a computer-based course could always schedule a personal meeting with his/her instructor.

While computer-based education at John Wood Community College will not replace faculty, it will change the traditional role of the faculty member. Rather than being the distributor of knowledge, the faculty member will adopt the role of learning manager. Faculty members will become more personally involved with students through the individualization of contact with students. Instead of dealing with students in mass in a classroom setting, the faculty will handle students on an individual basis through the use of the computer and electronic mail. Assignments and remediation of specific lessons can be done according to individual student needs which holds great promise for both gifted and slower students, who have traditionally and detrimentally been overlooked.

CAD/CAM

Throughout the United States the alarm has been sounded for business and industry to become more competitive through the use of high technology applied to the manufacturing process. Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) applications, Robotics, and Production Automation Systems are now being developed and implemented to reduce labor costs and to insure quality control.

Inherent in the implementation of new manufacturing processes is the challenge not only of providing educational training programs for a changing work force, but of providing technology transfer programs that assist industry in commercializing available technology for new applications, (COMBASE Monograph, 1987).

Industries located in rural areas pose special problems for technology transfer and training. First and foremost is the fact that many rural industries tend to be less technologically sophisticated and frequently require more technical assistance than their counterparts in metropolitan areas. They also may not have the financial support to implement the needed technology.

John Wood Community College is attempting to bridge the gap by encouraging local industries toward automated manufacturing cells, computer aided design, software development centers and special computer applications. The college is assuming a leadership role in adopting new technology by serving in a consulting capacity and forming advisory groups to brainstorm issues.

Ultimately, JWCC must face the challenge of developing a technology center laboratory as well as hiring faculty who are in tune with the needs of industry. In that regard, the college is proposing a rather radical departure from the traditional on-campus laboratory development by introducing a CAD/CAM lab at the Quincy Business and Technology Center (a "business Incubator"). The college also intends to collaborating with Western Illinois University to insure that training programs and coursework articulate towards a career ladder concept. The intermingling of community college and university faculty will insure a greater range and depth of service and training than either party could achieve separately.

Finally, JWCC intends to provide entrepreneurs with the latest technology to support their new business ventures, by locating the CAD/CAM laboratory in the incubator. The equipment will be available to small business operations on a time share basis, and the Center will provide consultant capabilities of the community college and the university to the user. The system will also access the Illinois Resource Network, a computer information base that can identify key industrial problem solvers throughout the State of Illinois. The college intends to develop the technology laboratory in a real world setting giving the students hands-on applications to company product lines, rather than being involved in simulation models.

The creation of a special laboratory for high technology applications requires a sizeable investment in facilities and equipment. JWCC proposes to reduce the outlay by using the

Incubator as the training site and by convincing local business and industry that pooling resources will provide a flexible, adaptable training model that will, in the long run, give the employers a quality product at a reasonable cost.

Interactive Televised Instruction

The concentration of the common market college along the western edge of the district has created a barrier to those in the central and eastern areas. The barrier of mileage has essentially discouraged hundreds of potential students from attending JWCC.

The use of traditional-style classes in small rural communities is limited by the small class sizes generated. It is difficult if not impossible for the College to offer a broad range of courses in geographically disbursed rural communities due to the lack of even minimal class sizes. In response to this need for improved access to education throughout western Illinois, CONVOCOM was created. Based at Sangamon State University in Springfield, Illinois, CONVOCOM is an educational television network which offers two separate methods of course delivery: 1) recorded telecourses which can be received in the home via cable television or a UHF antenna and 2) an interactive televised microwave network which allows two way communication between two send-receive sites on the CONVOCOM network. The colleges and universities participating in CONVOCOM are JWCC, Sangamon State University, Quincy College, Bradley University, Western Illinois University, Illinois Central College, and Blackhawk Community College. CONVOCOM has made a wide variety of

college-level courses available through both over-the-air and microwave broadcasts. JWCC is expanding its use of this delivery system to better serve the residents of the rural communities of the District. By doing so, JWCC will improve academic quality and increase credit hour production and revenues.

Through the microwave portion of CONVOCOM it is possible for students at one institution to see and hear an instructor at another institution, and vice versa -- the instructor can see and hear the students. Students will be able to access instruction through CONVOCOM never before available in the district, such as engineering classes and other technology-based programs.

Conclusion

John Wood Community College has been a pioneer in developing creative educational delivery systems since its inception in 1974. These delivery systems have been quite successful for JWCC -- in just ten years, the college has served over 30,000 residents through its broad range of credit bearing instructional programs. It is important to note that these systems have not been developed simply for the sake of being different -- rather, they have been purposely developed to reflect the characteristics, resources, and needs of the region and its people. The current project of using technology to reach distant learners is not dependent upon any new or expensive technological developments. It uses and combines existing and affordable technologies to provide a relatively low cost way of reaching out and meeting the needs of district residents.

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